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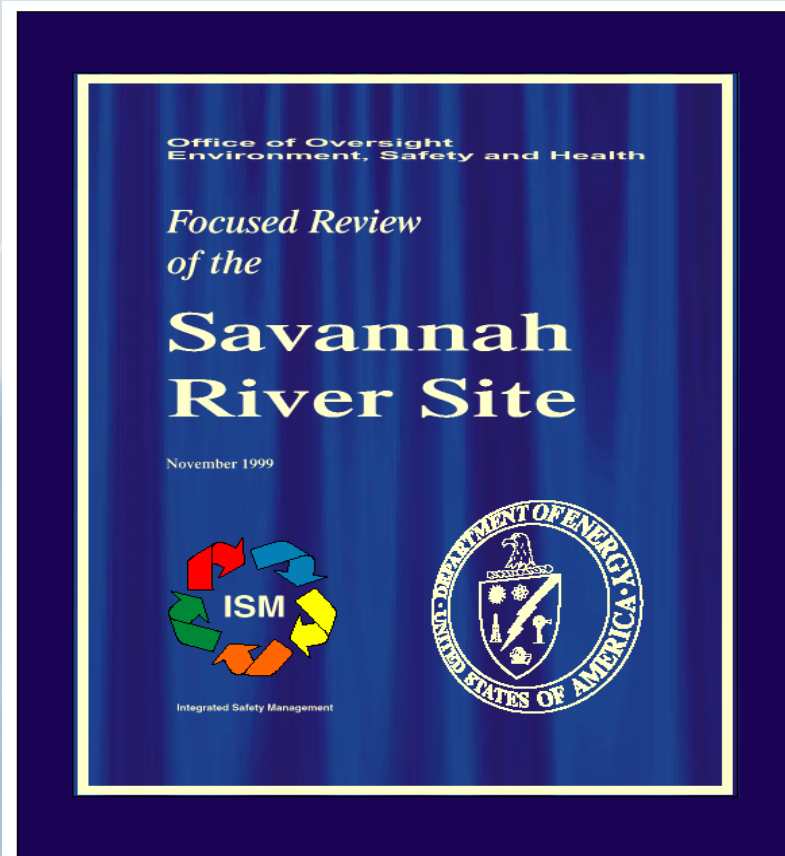
**WSRC**

**Hazard Analysis  
At the Activity Level**

**SRS**

s a v a n n a h   r i v e r   s i t e

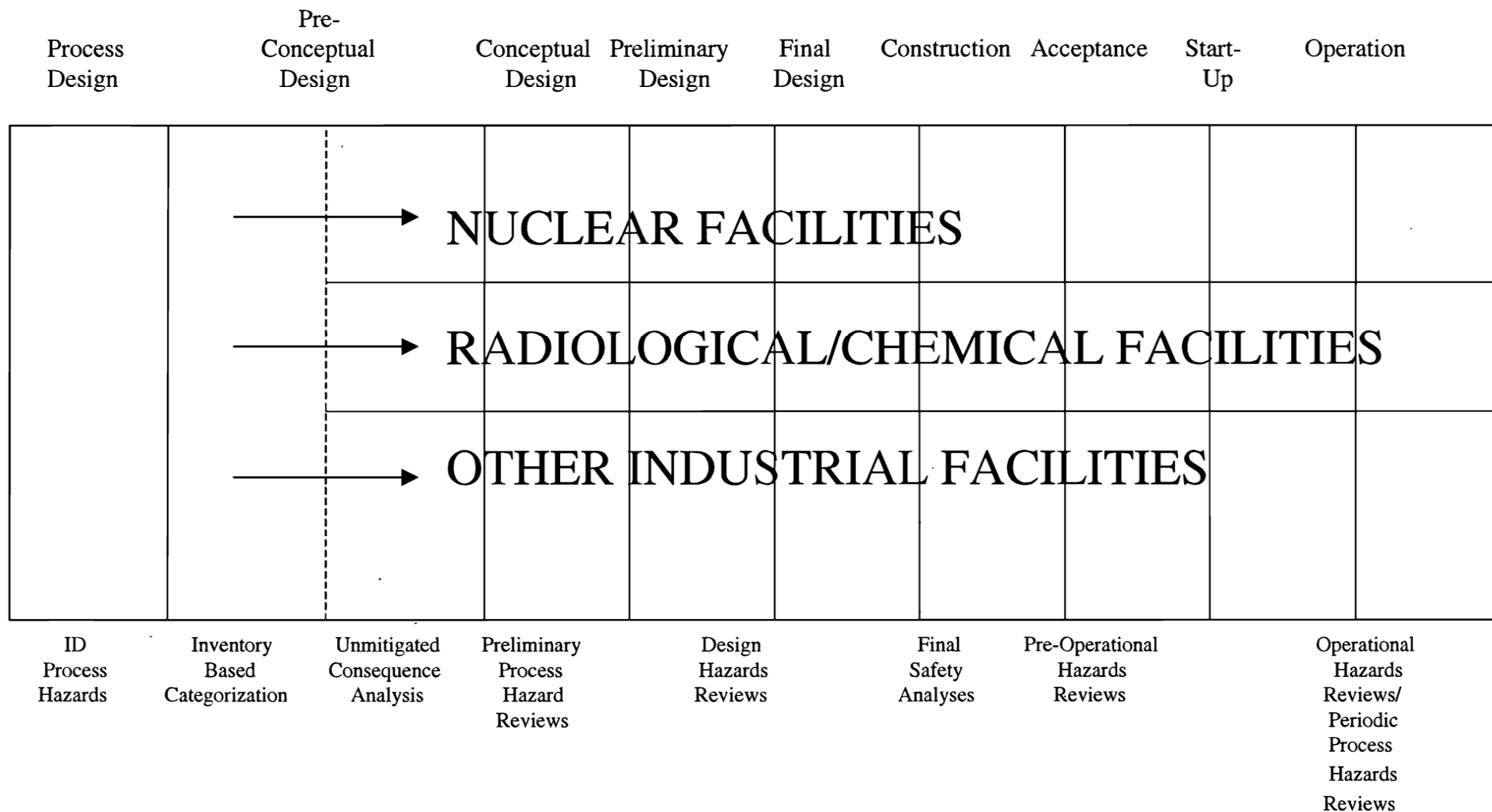
# Background -DOE Site Review (7-99)



- Finding - lack of integration and linkage between the various hazard analysis elements
- Strong Individual processes, but . . .
  - ❑ Over 100 procedures identified that contain hazards analysis content
- Team formed to integrate Processes

**SRS**

# LEVEL I OF HAZGATE



# Consolidated Hazards Analysis Process

## ( C H A P )

- Integrate/Streamline Hazard Analyses In Hazgate
- Integrate Hazard Analysis With Other Functions
  - Control Selection
  - Functional Equipment Classification
  - Design
  - Standards Identification
- Schedule
  - 2000
  - 2001
  - 2002

HAZGATE

Develop CHAP

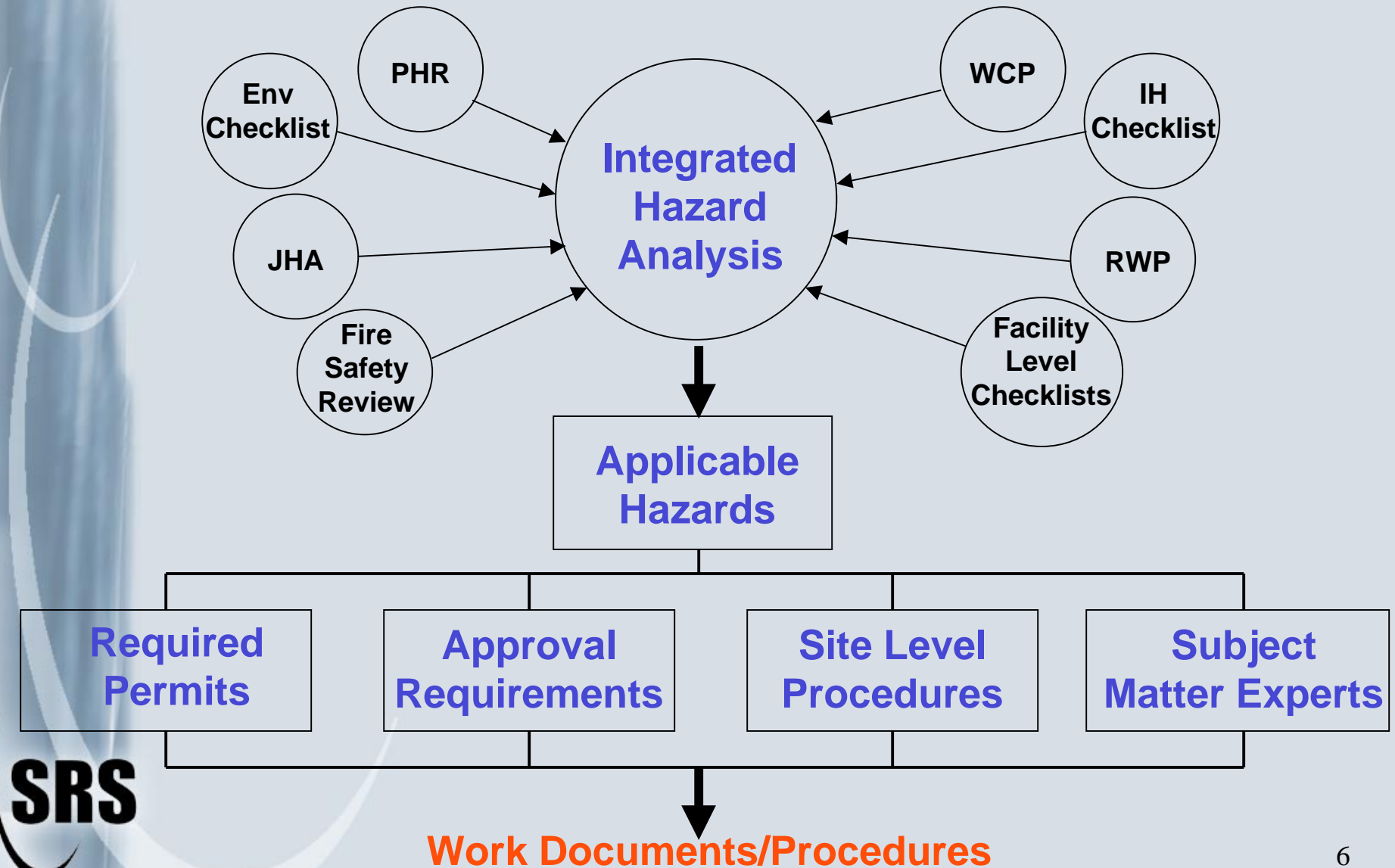
Institutionalize CHAP

**SRS**

# Hazard Analysis at the Activity Level

- **The critical piece for worker protection**
  - ❑ SAR protects the public
  - ❑ JHA protects the worker
- **Need a comprehensive process**
  - ❑ Incorporates all subject matters experts
  - ❑ To assist work planners, but not for them alone
- **Need a process that workers have confidence in**
  - ❑ They should be involved
- **Need a process that is efficient**

# Integrated Vision for the Activity Level



# Hanford Software

## ➤ Automated Hazard Analysis (AHA)

- ❑ Computer-based product designed to prompt work planners and professional through a series of questions to identify and analyze the hazards of the activity
- ❑ The Hanford Software was reviewed by a team of Subject Matter Experts to tailor the information specific to SRS programs

## ➤ Benefits

- ❑ Significant development costs -- 30,000+ man-hours -- could be avoided
- ❑ Consistent set of standard hazards assessment questions - generated by SMEs - used site-wide
  - *Can be readily tailored to individual facilities*
- ❑ Provide electronic links to other systems, automatic notification to reviewers, and rapid status

**SRS**

Locked:

No

## Risk and Complexity Determination

AHA ID: SRS-145 Revision: 0 Status: AHA initiated / AHA not complete

Mini-Help: To determine risk, it may be necessary to perform an AHA at least one time, unless a comparable hazard analysis is available.

Categorize the task by risk and complexity (Click USER GUIDE on toolbar):

- ☐ Is this ranking made as a prescreening without conducting an AHA?
- ☒ Is this ranking made based on an AHA?

**Low Risk:**

- Work Instructions when necessary.
- Hazard review; AHA not required.
- Minimal Supervisor involvement.
- Pre-job Briefing or Turnover, as necessary.
- Post-Job Review if determined necessary by Worker/Work Team.
- Team Planning optional.

**Risk:**

- ☒ Low
- ☐ Medium
- ☐ High

**Complexity:**

- ☒ Low
- ☐ Medium
- ☐ High

**Complexity:**

Complex tasks, regardless of the risk level may require more rigor in planning and work execution

FUTURE Reference to SRS AHA Procedure

Facility Specific Criteria, General

Facility Specific Criteria, Radcon

Set as Prescreen Only

Set as Standing Prescreen Only

Prep Full AHA



Locked:

No

## Risk and Complexity Determination

AHA ID: SRS-145 Revision: 0 Status: AHA initiated / AHA not complete

Mini-Help: To determine risk, it may be necessary to perform an AHA at least one time, unless a comparable hazard analysis is available.

Categorize the task by risk and complexity (Click USER GUIDE on toolbar):

- ☐ Is this ranking made as a prescreening without conducting an AHA?
- ☒ Is this ranking made based on an AHA?

**High Risk:**

- Written Work Instructions.
- Task Specific AHA or Standing AHA, if adequate.
- Supervisor involvement in field.
- Pre-Job Briefing Required.
- Post-Job Review Required.
- Team Planning Required.

**Risk:**

- ☐ Low
- ☐ Medium
- ☒ High

**Complexity:**

- ☐ Low
- ☐ Medium
- ☒ High

**Complexity:**

Complex tasks, regardless of the risk level may require more rigor in planning and work execution

FUTURE Reference to SRS AHA Procedure

Facility Specific Criteria, General

Facility Specific Criteria, Radcon

Set as Prescreen Only

Set as Standing Prescreen Only

Prep Full AHA

Facility:	SRS	ID:	SRS-146	Rev:	0	Title:	Chemical AHA	Locked:	No
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## Read Only

**Hazard Question:**

- ☒ Painting, finishing, prepping surfaces?
  - ☒ Spray painting?
  - ☒ Solvent based?
  - ☒ Lead based paints?
  - ☒ Chromate containing paints?
  - ☒ Isocyanate containing paints/coatings?
  - ☒ Previously painted?
  - ☒ New paints/products being used?
- ☒ Lead or lead-containing materials?
- ☒ Tank, line, vessel opened/breached?
  - ☒ Material is non-hazardous?
  - ☒ Material is hazardous?
    - ☒ Task is infrequent or non-routine?
    - ☒ Task does NOT have a procedure or detailed evaluation?
    - ☒ Task is performed outside of a containment (glovebox) and isolation?
    - ☒ Task is performed outside of a containment (glovebox) and activity?
- ☒ Activity alters or affects process ventilation systems?
- ☒ Activity alters or affects pressure vessels or pressure relief devices?
- ☒ Chemicals/chemical products?
  - ☒ Chemicals/chemical products used?
  - ☒ Containerized chemicals involved?
  - ☒ New chemicals/chemical products?
  - ☒ Potential release of gas/vapor?
- ☒ Significant noise sources?

Does the activity involve chemicals or chemical products?

- Hazard?

No



**Mini Help:**

Click text for scroll bar.



**Automated Hazard Analysis (SRS1-9/25/2001) - [Hazard Analysis - Drill Down]**

Navigation | Select Controls | Comments | LL/Info | Help | User Guide

Facility: SRS ID: SRS-146 Rev 0 Title: Chemcial AHA Locked: No

**AHA Hazard ID Navigation:** Read Only

**Hazard Question:**

Does the activity involve chemicals or chemical products?

Hazard? ☒ Yes ☐ No ☐ ?

Mini H... Click for scroll bar.

**The hazard tree asks questions and sub-questions about the task**

- ☒ Painting, finishing, prepping surfaces?
  - ☐ Spray painting?
  - ☐ Solvent based?
  - ☐ Lead based paints?
  - ☐ Chromate containing paints?
  - ☐ Isocyanate containing paints/coatings?
  - ☐ Previously painted?
  - ☒ New paints/products being used?
- ☐ Lead or lead-containing materials?
- ☒ Tank, line, vessel opened/breached?
  - ☐ Material is non-hazardous?
  - ☒ Material is hazardous?
    - ☒ Task is infrequent or non-routine?
    - ☒ Task does NOT have a procedure or detailed evaluation?
    - ☒ Task is performed outside of a containment (glovebox) and isolation?
    - ☐ Task is performed outside of a containment (glovebox) and activity?
- ☐ Activity alters or affects process ventilation systems?
- ☐ Activity alters or affects pressure vessels or pressure relief devices?
- ☒ Chemicals/chemical products?
  - ☐ Chemicals/chemical products used?
  - ☐ Containerized chemicals involved?
  - ☐ New chemicals/chemical products?
  - ☒ Potential release of gas/vapor?
- ☐ Significant noise sources?

**The user answers the question Yes, No or leaves as a "?" which signals the SME to assist in answering the question.**

Automated Hazard Analysis (SRS1-9/25/2001) - [Hazard Analysis - Drill Down]

Navigation

Select Controls

Comments

Info

Help

User Guide

Facility: SRS

ID: SRS-146

Rev: 0

Title: Chemical AHA

Locked: No

AHA Hazard ID Navigation:

Full Only

Activity has inadequate lighting or activity conducted at night?

Activity requires manual lifting or use of excessive force, repetitive motion, or awkward postures?

Activity involves removing or disturbing hole covers or debris?

Activity involves handling sharp or cutting tools such as knives, saws, or shears?

Activity involves concrete or masonry work?

Activity involves demolition?

Activity involves blasting or the use of explosives?

Hazardous energy sources can be contacted or released (includes Lockout/Tagout)

Activity involves installing, removing, or performing inspections or maintenance on equipment?

Gas cylinders (bottles) used or affected by the work?

Roof work/access?

Machine guarding issues?

Working in Remote Locations?

Hand or portable power tools used?

Confined Space Entry?

Painting, finishing, prepping surfaces?

Spray painting?

Solvent based?

Lead based paints?

Chromate containing paints?

Isocyanate containing paints/coatings?

Previously painted?

New paints/products being used?

Lead or lead-containing materials?

Hazard Question:

Are there sources of energy which if suddenly or unexpectedly released could harm a worker?

Hazard?

Yes

No

?

Mini Help:

Click text for scroll bar.

This includes lockout/tagout. If a lockout/tagout is needed or has been installed, the answer is Yes. This also includes opening hazard enclosures and penetrating walls, cabinets or structures.

Lessons Learned

Mini Help

**Automated Hazards Analysis**

File Edit Bookmark Options Help

Help Topics Back Print << >>

### Requirements

Occupational Safety and Health Standards, Subpart Z--Toxic and Hazardous Substances, [29 CFR 1910](#), Subpart Z

Air Contaminants, [29 CFR 1910.1000](#)

Threshold Limit Values for Chemical Substances and Physical Agents, American Conference of Governmental Industrial Hygienists (ACGIH) (Internet not available)

Carcinogens, [29 CFR 1910.1003](#)

Carcinogenic Hazard, WSRC Manual 4Q, 302  
Appendix A  
Appendix B

Hazard Communication, [29 CFR 1910.1200](#)  
Appendix [A](#)  
Appendix [B](#)  
Appendix [C](#)  
Appendix [D](#)  
Appendix [E](#)

Hazard Communication—WSRC Manual 3B- 203  
Respiratory Protection, WSRC Manual 4Q, 1301

**Internet Links  
to Requirements**

**Automated Hazard Analysis (SRS1-9/25/2001) - [Select Controls]**

Navigation | Identify Hazards | Controls by Task | LL/Info | Help | User Guide | Spelling...

Read Only | **Select Controls** | Locked: No

**Identified Hazards:**

Tank, line, vessel opened/breached?

Material is hazardous?

Task is infrequent or non-routine?

Task does NOT have a procedure or detailed evaluation?

Task is performed outside of a containment (glovebox) and isolat

Main Task: Remove/Replace process piping

Sub Task1: Remove piping

Sub Task2: Replace piping

Sub Task3: Repaint piping

**Mandatory Controls** | Select Additional Controls

Install lockout per 8Q, Procedure 32

Work group supervisor or design present for initial access

Identify the specific method for making access (E.G. unbolt flange, drill, cut, etc.)

Notify Shift manager prior to and after the job

Main	1	2	3
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Mandatory Controls Automatically Populate**

Record: 5 of 8

**Automated Hazard Analysis (SRS1-9/25/2001) - [Select Controls]**

Navigation | Identify Hazards | Controls by Task | LL/Info | Help | User Guide | Spelling...

Read Only | **Select Controls** | Locked: No

**Identified Hazards:**

Tank, line, vessel opened/breached?

Material is hazardous?

Task is infrequent or non-routine?

Task does NOT have a procedure or detailed evaluation?

Task is performed outside of a containment (glovebox) and isolat

Main Task: Remove/Replace process piping

Sub Task1: Remove piping

Sub Task2: Replace piping

Sub Task3: Repaint piping

**Mandatory Controls** | **Select Additional Controls**

	Main	1	2	3
Tag access point with "Access Point of Identification Tag" (OSR 20-180)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appoint Operations Representative to be present during access to identify access point	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Install barricade of work area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remove material by venting, draining, and/or flushing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conduct wet tapping to drain low points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List significant hazardous agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waste handling and disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel/material decon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special tools (e.g., nonsparking, pneumatic, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Containments (fluids, sludge)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Containments (airborne hazards)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ventilation/engineering controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Record: 5 of 8

**Select Additional Controls For Task**

**Automated Hazard Analysis (SRS1-9/25/2001) - [Forms and Permits]**

Navigation | Controls by Task | Involvement | User Guide

## Forms and Permits

AHA ID: SRS-145      Rev: 0  
Facility: SRS      Locked: No

Forms/Permits that are required by the identified hazards:

Name
Hot Work Permit (OSR 20-195)

Clear Selection

Forms/Permits that exist in this AHA:

Name	Complete
Hot Work Permit (OSR 20-195)	No

**Required Forms/Permits based on Hazards**

**Create required Forms/Permits**

Form/Permit Options:

- View/Edit
- Create
- Clone
- Revision
- Remove
- ID Existing
- Add From Inventory
- Complete (Toggle)



**Automated Hazard Analysis (SRS1-9/25/2001) - [Involvement]**

Navigation | Forms and Permits | Finalize the AJHA | Print Req. SME List | User Guide

## Subject Matter Expert/Participant Involvement

Current Facility: SRS      AHA ID: SRS-146      Locked: ☐

The following involvements were triggered by the hazards and controls:

Involve SME's	Identified Hazard Leading to I
<input checked="" type="checkbox"/> Fire Protection	Hot work?
<input type="checkbox"/> Generator Certification Official	New paint?
<input type="checkbox"/> Generator Certification Official	Tank, line, vessel opened/breached?
<input type="checkbox"/> Industrial Hygiene	New paints/products being used?
<input type="checkbox"/> Industrial Hygiene	Tank, line, vessel opened/breached?
<input type="checkbox"/> Industrial Hygiene	Potential for heat stress?

SME's add their involvement indications below (press the Add Subject Matter Expert) or add Participants:

SME/Participant List	Name	Title / Text
----------------------	------	--------------

**Required Subject Matter Experts based on hazards. Automatic e-mail notification of AHA waiting their review**

**Subject Matter Expert review and approval appears here once they complete and input their password**

**Automated Hazard Analysis (SRS1-9/25/2001) - [Finalize AHA]**

Navigation | Involvement | Print Reports | User Guide

## Finalize AHA

Current Facility: SRS  
AHA ID: SRS-146  
Revision: 0  
Locked: No Read Only

Current AHA Status: AHA initiated / AHA not complete

Identify Hazards (Tree): Complete

Required Forms/Permits: Missing Hot Work Permit (OSR 20-195)

Required Involvement: Missing Fire Protection, Generator Certification Official, Industrial Hygiene, Industrial Safety, Operations, RCO

Set the AHA Status:

AHA Complete Work Not Complete | Standing AHA Complete | Work

**Missing information identified. AHA cannot be completed.**

Close Report

safe work requirements/controls (including PPE) to be used to alleviate/control the hazard(s).

**MAIN TASK: Remove/Replace process piping**

IDENTIFIED HAZARD	CONTROLS	ADDITIONAL TEXT
Activity requires manual lifting, awkward posture, excessive force, repetitive motion, or handling awkward loads		
Hazardous Energy (Lockout/Tagout)		2001-004
Powered Hand Held Tools		
Painting, Finishing, Preparing Painted Surfaces New Paints Used (Obtain Approval and MSDS)	Provide an MSDS for the new paint/product	
Tanks, Lines, Vessels Opened or Breached Material is hazardous Task is infrequent or non-routine Task does NOT have a procedure or detailed evaluation Task is performed outside of a containment (glovebox) and	Install lockout per 8Q, Procedure 32 Work group supervisor or designee present for initial access Notify Shift manager prior to and after the job Identify the specific method for making access (E.G. unbolt flange, drill, cut, etc.) Install barricade of work area Remove material by venting, draining, and/or	L/T2001-004  Cut bolts with protab and saw at identified flanges

The AHA final report lists identified hazards, controls, and additional text. Report becomes a part of the work package or controls incorporated into operating procedures.

**Automated Hazard Analysis (SRS1-9/25/2001) - [Inventory List]**

Go To Start Find Print AHA Inventory AHA User Guide LL/Info Exit AHA

### AHA Inventory List for SRS

AHA ID	Rev	Init. Date	Work Title	Status	Comp. Date	Work No
SRS-146	0	9/27/01	Chemical AHA	I		
SRS-145	0	9/27/01		I		
SRS-144	0	9/26/01		I		
SRS-143	0	9/24/01		I		
SRS-142	0			I		
SRS-141	0	9/24/01		I		
SRS-140	0	9/24/01		I		
SRS-139	0	9/24/01		I		0026896
SRS-138	0	9/4/01		I		0022187
SRS-137	0	9/4/01		I		0023979
SRS-136	0	8/30/01		I		
SRS-135	0	8/30/01		I		
SRS-134	0	8/29/01		S	8/29/01	
SRS-133	0	8/29/01		I		

**Facility AHA Inventory AHAs can be cloned for development of similar jobs to increase efficiency as well as develop standing AHAs for routine tasks**

View/Edit Read Only Create Revision Print Clone Forms/Permits

Select a new category: All AHA Categories

AHA Coordinator Only Lock/Unlock Delete

# Path Forward - Milestones

- **Aggressive schedule being pursued to complete development**
  - ❑ Hanford product modified for SRS processes/procedures by 10/01
  - ❑ Desktop review of AHA product with selected work planners in 10/01
- **Pilot in selected facilities beginning in 12/01**
  - ❑ High Hazard Operations Facility - High Level Waste application
  - ❑ Low Hazards Operations Facility - Low-level waste application
  - ❑ R&D Facility - Savannah River Technology Center
- **Detailed roll-out plan developed based on pilot experience**
  - ❑ Target initial implementation in late FY02



**SRS**